About the Programme

The faculty development program on ***"Deep Learning Application in Medical Image Analysis"*** will be held on March 17th – 22nd 2025. This workshop provides comprehensive knowledge and hands-on experience in deep learning for medical image analysis.

As AI continues to revolutionize healthcare, participants will explore key techniques such as image classification, segmentation, anomaly detection, and disease prediction. The program covers advanced architectures, including convolutional neural networks (CNNs), vision transformers (ViTs), and generative models, with applications in radiology, pathology, and dermatology.

Emphasizing practical learning, attendees will work with real medical imaging datasets, gaining insights into model training, evaluation, and deployment. The workshop also highlights effective learning methodologies and curriculum design, enabling participants to translate deep learning concepts into real-world applications.

By the end of the workshop, attendees will be well-equipped to integrate AI-driven solutions into medical imaging workflows, fostering innovation and interdisciplinary research in healthcare.

Program Objectives

1. Understand the fundamentals of deep learning in medical image analysis.
2. Explore state-of-the-art AI architectures for medical imaging applications.
3. Gain hands-on experience in training and evaluating deep learning models.
4. Develop skills to implement AI solutions in real-world healthcare scenarios

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Convenor

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MANIPAL ACADEMY of HIGHER EDUCATION
(Institution of Eminence Deemed to be University)

Six-Day Faculty Development Program

On

"Deep Learning Application in Medical Image Analysis"

17th March – 22nd March 2025

Organized by

Department of CSE
Manipal Institute of Technology Bengaluru
Manipal Academy of Higher Education

In Association With
ICT Academy, NIT Warangal

Sponsored By

MeitY
Government of India

Ministry of Electronics and Information Technology (MeitY), GoI

Topics to be Covered

Day 1:

- Fundamentals of AI, Machine Learning and Deep Learning
- Overview of Machine Learning Techniques.
- Probability Distributions- Bayesian learning, decision tree-based classification methods
- Research in Machine Learning, Deep Learning and Applications

Day -2

- Dimensionality reduction methods
- Support vector machine classification and application Neural networks and practical implementations
- Clustering: K Means, C-Means, Agglomerative Clustering.
- Hands-on to the implementation of supervised and unsupervised methods.

Day -3

- Deep learning methods Architecture and applications.
- Machine Learning Application in Computer Vision.

Day-4:

- Transfer Learning and GAN models.
- Reinforcement Learning, Optimization and Data-driven methods.
- Data Visualization with Python.

Day-5:

- Large Language Models by LSTM and Classical NLP methods.
- Applications based on NLP's and Fine-tuning of LLMs.
- Computer vision-based Application.

Day-6:

- Building intelligent chatbots using LLM and Llama
- Bio-Medical Applications: Neural Networks protein structure prediction, Profile hidden Markov model sequence analysis, Analysis of Microarray.

About the MIT, Bengaluru

Manipal Institute of Technology Bengaluru is an off campus of **Manipal Academy of Higher Education** (MAHE) (*an Institution of Eminence Deemed to be University*), located in Yelahanka, Bengaluru, the Silicon Valley and Infotech capital of India. **MAHE** is considered one of India's best universities and is globally recognized for its quality education. The university has an NIRF ranking of 4th amongst universities in India, and QS World University Rankings in the band of 951- 1000 in 2024. It is a globally engaged institution with active partnerships with more than 220 leading universities around the globe from 6 continents. The five approved programs are Computer Science and Engineering, Information Technology, Electronics and Communication, Computer Science and Engineering – Artificial Intelligence, and Computer Science and Engineering – Cyber Security. MAHE has been recognized as a Deemed-to-be University since 1993 and has been accorded the status of Institute of Eminence (IoE) by MHRD, Government of India

About NIT Warangal:

National Institute of Technology, Warangal, is the first among 17 RECs set up as a joint venture of the Government of India and the state government. Over the years, the college has established itself as a premier Institute imparting technical education of a very high standard, leading to B.Tech degrees in various branches of engineering, M.Tech., and Ph.D. programmes in various specializations. All B. Tech and M. Tech programmes of NIT Warangal are NBA accredited.

About The Department

The Computer Science & Engineering (CSE) department at Manipal Institute of Technology Bengaluru offers B.Tech programs in CSE and AI, focusing on innovation and research in computing and allied fields. The program equips students with skills for problem-solving and advanced studies through core courses, program electives, and open electives in emerging areas. With strong industry collaborations, the department prepares students for careers in cutting-edge technologies and computational techniques, fostering research and development in Computer Science and AI

Resource Persons:
The program will be conducted by faculty members from NIT Warangal and academicians from IITs, NITs, and IIITs specializing in the relevant field.

Registration Link:
https://forms.gle/JhbnUwSQBEbeY3He8

Selection Criteria:
Selection will be on a first-come, first-serve basis with a maximum of 40 participants. Satisfactory certificates will be issued upon successful completion of the FDP.

Important Dates:
Last date to register: 10.03.2025
Selection List by Email: 11.03.2025

Registration Fee:
Faculty and Research Scholars: ₹2,500/-
Industry Participants: ₹7,500/-

Online Transfer Details:
Account Name: Electronics & ICT Academy NITW
Account No:62423775910
IFSC: SBIN0020149
Bank: State Bank of India
Branch: NIT(REC) Warangal